

Carrying the flame: Using data to help tell the Olympic torch  
relay's story across time

**An Honors Thesis (HONR 499)**

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April 2017

**Expected Date of Graduation**  
May 2017

SpCo II  
Undergrad  
Thesis  
LD  
2489  
.24  
2017  
H68

## Abstract

Every two years the Olympic torch relay marks the start of the coming Olympics Games. The International Olympic Committee calls the relay a symbol of peace between nations. The start of the relay marks the beginning of Olympic times and brings surface-level stories about the torch relay that barely scratch its surface, however. Such stories revolve around the beginning of the relay, where the torch visits, protests surrounding the relay, and the final torchbearer bringing the Olympic flame to the cauldron to signify the start of the Games.

Yet, it's no longer acceptable to rehash the same stories again and again in journalism because it doesn't inspire readers to support the news.

How and why information is presented online in journalism is more important than ever because of the pressing need to better connect with readers and motivate them to support journalism.

A wealth of data exists online, thanks to the internet and ever expanding computing power, but journalists are just scratching the surface of what's possible in storytelling with data and the internet. My creative project, "Carrying the flame," seeks to set an example for how journalists can better tell data-driven stories online, both in appearance and in the technical aspects of designing stories for the web. The project also acts as an example for covering a topic in a new, unique way by providing sharp data visualizations and additional resources that might help others learn more about the relay.

This paper contains a process analysis only, which serves as a walkthrough on how I went about creating this project.

## **Acknowledgments**

I would like to thank Renee Human for advising me through this project. Her support and knowledge were critical in its execution. She quickly became my biggest fan and close confidant.

I would like to thank Ryan Sparrow for serving as my integrated studies academic advisor and for also offering me design insight throughout this project. I would never have pursued this project and be ready to enter the workforce with a great set of journalistic skills without him. Also, I owe him a big thank you for taking me to Washington, D.C., to help take notes for judges at the Society for News Design Digital Competition, where top editors from around the world came together to choose the most innovative pieces of journalism in 2016. Listening to the brightest minds in journalism talk about what they saw as innovative and groundbreaking in journalism informed design and user experience decisions in my creative thesis project.

Thank you to Stacie Kammerling and Tyson Bird for their design services in this project. They helped provide key design insight to make this project look and feel great for users.

Thank you to Kara Berg for her copy editing services.

I spoke with Jennifer Weaver at Ball State's Office of Research Integrity in November 2016 about this project. She saw no reason for me to submit my project proposal to the Institutional Review Board. Her opinion was that my research does not qualify as human subject research.

# Carrying the flame

Using data to help tell the Olympic torch relay's  
story across time

A walkthrough detailing how I put the project together and what  
it means within the context of user experience in online and  
data journalism

*By Alan F. Hovorka Jr. | April 2017*



**Live project link**

<https://relays.alanhovorka.com>

**View the project files on Github**

<https://github.com/alanhovorka/relay>

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# Introduction

My creative thesis, “Carrying the flame,” started as a story and graphic package idea for BSU at The Games, a Ball State immersive learning class that sent a team of student journalists to the Olympics and the Chicago Tribune to report on the Games. I was part of the cohort that traveled to the Chicago Tribune to do graphics reporting. Both groups of students produced stories, photos, videos, and graphics for the class that were published by news organizations across the United States. My idea to do some sort of visualization about the torch relay ended up evolving into this creative thesis.

In May 2016, I started looking for story ideas related to the Olympics and I stumbled upon some Olympic Studies Centre reference documents about the torch relay that contained a wealth of data. This is what sparked my idea to do some sort of story package about the relay. I looked around to see what other journalists had done on the torch relay from a data perspective. I discovered there weren’t any comprehensive datasets on the internet, which prompted a marathon session to hack together and clean, a comprehensive dataset based on those Olympic Studies Centre reference documents.

My end goal was to create a story and data visualization package for BSU at the Games. The end product would look at the Olympic torch relay from a data perspective.

I would eventually use the question “What can data tell us about the relay?” as a starting point for the content on the special projects page I created for the torch relay.

However, I didn’t finish the project in time for

any news organization to be able to publish the pieces I created, thus it became my creative thesis project because the honors thesis process allowed for more in-depth work.

In my research, finding data on the relay became an obsession. I took deeper and deeper dives into the history of the relay and its Nazi origins, discovering how little it is mentioned in the broader context of the Games. During each iteration of the relay, only a handful of news organizations will post a piece about the relay’s history. It’s understandable why journalists might not cover the relay’s past and future in greater detail given the inaccessibility of relay documents, but this project seeks to remedy that issue.

I also discovered, in my research, the disparity between men and women as torchbearers, how relays evolved to use more elaborate forms of transportation, and the sheer number days passed and miles crossed in relays.

All of these findings informed the project as it exists now, which seeks to fill in the gaps of journalistic Olympic coverage, provide interesting looks into the relay through data and records, and set an example for how journalists might better visualize and present information on the web.



# Personal statement

Executing a planned, long-term project from the conceptual stage to launched product has deepened my understanding of journalism in a number of ways.

First, this project gave me another opportunity to do news reporting and the only way you get better at reporting is by working at it and doing more stories. The story I wrote about the Olympic torch relay's Nazi history is one of my better ones in terms of flow and structure. The story gave me a chance to hone some of my enterprise skills and work on how I structure stories. My biggest weakness as a storyteller is in how I structure and flow ideas and paragraphs together. This story about the Nazi origins of the relay presented a unique challenge because I had to figure out a way to make it immediately interesting to the reader without an immediate time peg. It needed to be written so it could be read at anytime and still have the same emotional impact on the reader. I solved this problem by focusing on what the relay stands for and what people see it as before diving into its history. The process of writing this piece helped me develop a better understanding on how to shape a story to make it relevant to whenever it needs to be published.

Opening paragraphs from the story about the relay's Nazi origins:

Scenes of smiling, cheering crowds dot the history of the Olympic torch relay. Such images stretch back to its founding during the 1936 Berlin Games, commonly called the Nazi Games. The International Olympic Committee calls the torch relay a symbol of peace and cooperation, a link between the

ancient and modern worlds. It's a symbol that travels the world, leaving its mark and inspiring generations, said Olympic historian Philip Barker.

"I've always found it quite emotional, actually," said Barker, a London-area resident. "The whole idea that you get two people meeting when they exchange the torch and they'll probably never meet again in their lives. And yet, for that moment, you're together."

The relay almost always kicks off in Greece, where a high priestess uses a parabolic mirror, a mirror that concentrates sunlight, to create fire. The priestess passes the flame to a male Greek runner. The runner then sets off on a journey meant to mark the start of Olympic times and a period of peace. Yet, the relay is no stranger to controversy.

Read the rest of the story:

[https://relays.alanhovorka.com/relay\\_history.html](https://relays.alanhovorka.com/relay_history.html)

Second, I learned a great deal about data collection and analysis through putting together my own dataset on the torch relay. There were a number of hurdles I crossed when I collected and cleaned the data, which will be discussed later in this paper. However, I learned how to go about building datasets when government or other institutions don't have them, an important skill to have in journalism.

Finally, the last area that this project furthered my knowledge in is in design and coding, specifically in how information is presented on the web. In creating this project, I had to take a lot of time to hone my HTML, CSS, and

JavaScript writing skills, which has left me with a better understanding of how the web works.

This project, and what I learned from it, grew out of creating my own major through the integrated studies program. My major covers news reporting, data analysis, data visualization, and design. I purposefully crafted this project to act as a real-world application for the courses I took in my major. The project served as my capstone, where I demonstrated my ability to process new information and pick up new skills on deadline.

While I had three months to do this project, there was a lot for me to do. I had to pull together all of my research, double and triple check my sources, write the stories for the website, pull together or create the art and visualizations for my website, research the tech I would use, teach myself how to use that tech, build the web pages using the tech I researched, figure out how to host the project, and finally launch the project.

My hope is that my creative project will help others better understand and report on the relay and that this paper will serve as a guide on how I created it.



# Key definitions

**Material Design** - A modular, visual language created and pioneered by Google. It focuses on synthesizing good design principles from print mediums with innovation and technology. The language is a system that creates a unified experience across all platforms and devices. The word material serves as a metaphor, meaning that elements on a page are grounded in reality. Google was inspired by studying paper and ink. Material Design takes the experience of interacting with paper and ink and tries to move that to the digital realm because the internet is the most visual medium to ever exist.

Material Design focuses on the use of surfaces, edges, light, movement, and surfaces to provide visual cues on how people should interact with a digital product. The visual language capitalizes on the fundamental aspects of print-based design, which include typography, grids, space, color and more.

When a user takes action with something using Material Design, motion reinforces the idea that the user is the prime mover on the page and that the user is in control of their experience online. If you use an Android phone, chances are all of your apps were designed using Material Design.

Google provides a living document that serves as guide on how to use its visual language at <https://material.io>.

**Open source** - A term that refers to making the original source code for a piece of software freely available, where it may be redistributed and modified. Open sourced

software and projects allow users to examine how a program or website works. It gives people the ability to peek into the inner workings of a web page or a piece of software. This creative project is open sourced.

**Creative commons** - A type of copyright license that makes it easy for you to share your products with the public, which ensures equitable access to others. This project was built using art and other items licensed under Creative Commons.

**GIF** - An acronym that stands for Graphics Interchange Format. GIF is an image format that supports both animated and static images.

**Webm** - An open source, royalty-free video format designed for use on the web. The webm format is seen as the successor to GIF for its smaller file size and improved image quality.

**Mp4** - A widely used video container format. Most videos uploaded and streamed on the internet use this file format.

**HTML** - HyperText Markup Language, one of the most basic building blocks for the web. It defines the information on a webpage and gives instructions on how it should be displayed. One of the three main languages that govern web pages.

**CSS** - Cascading Style Sheets, a style sheet language used to define how information should be displayed on a page written in a markup language, such as HTML. One of the three main languages that govern web pages.



**JavaScript (JS)** - a scripting language which determines the behavior of web pages. JS is one of the three main languages that govern web pages. HTML governs web page structure and content, CSS governs the style of a web page. JavaScript governs behavior of a web page, such as user inputs and other interactive elements. Don't confuse this with the programming language Java. These are two different languages, even though they share some baseline, outward similarities.

**CDN** - Commonly known as either a content delivery network or content distribution network. CDNs are globally distributed networks of proxy servers that serve content to users with high availability and high performance. Web developers use CDNs for libraries, like Bootstrap or web fonts, so don't have to load the entire library when they open a web page. Rather, when a developer uses a CDN, the library is already loaded somewhere and the user just calls it.

**Masonry** - A JavaScript grid library that places page elements in optimal positions based on the available vertical space. It allows for page elements to dynamically change their position on the page based on user input or screen size.  
<https://masonry.desandro.com/>

**jQuery** - A popular JavaScript library that allows for HTML document manipulation, animation, and more.

**Google Fonts** - A Google platform that allows for the use of open-sourced typography on websites via a CDN. Choose your font and insert the CDN into your HTML.

**Bootstrap** - One of the most popular web frameworks available on the internet. Bootstrap is a framework that includes prebuilt modules and packages that use HTML, CSS, and JS. It's great for developing

and deploying responsive, mobile first projects quickly.  
<http://getbootstrap.com/>

**Enterprise story** - An enterprise story in journalism is a piece that can have no immediate time peg. It's a piece that can be relevant at any time because of subject or how it's written. It's also something that no one else has.

**User interface (UI)** - A system for how users interact with computers and software. It's the visual body that users interact with to give computers input.

**User experience (UX)** - The overall reaction and impression someone takes away after using your product or software, which mainly relates to how something looks or how easy to use it is.

**Ai2html** - An open source Adobe Illustrator plugin by The New York Times that allows designers to lay out charts, maps, and other elements for a web page in illustrator and export it as HTML instead of an image file that's susceptible to compression. This allows for the charts and maps to scale on mobile without text becoming unreadable.  
<http://ai2html.org/>



# Goals

1. Provide an example of good user interfaces and user experiences on desktop and mobile for journalism projects
2. Provide better, easy-to-access information and data about the Olympic torch relay
3. Make the project accessible for users across platforms both in terms of layout and speed
4. Promote transparency in journalism projects by making the project's code and data open source

# Inspiration and guiding principles

While I had data and story ideas for this project before I started building it because of BSU at the Games, how I communicated those ideas with readers was still up in the air when I began my work in January 2017.

The starting point for this project began with discussions between my thesis advisor Renee Human and myself. She introduced me to the mass communication theory “coordinated management of meaning,” which generally states that you may be the creator of a story or product, but the user also plays a major role in using the product. Together, with what you produce and with how users interact with the information you produce, meaning is created. This theory guided me through the initial planning stages of which graphics and stories I wanted to include and how I wanted people to interact with them.

I wanted to solve the conceptual problem of

how to provide better, accessible information about the Olympic torch relay and produce engaging, data-driven journalism that reports on it in ways others have not.

This mass communication theory led me to identify my role in this project as one that facilitates the facts and lets users come to their own conclusions about the relay. However, this isn't to say I'm just passing information along to readers. Such a move would be lazy and would not motivate readers to engage with the pieces I created, a principle taken from Joseph Williams and Joseph Bizup's book “Style: Lessons in Clarity and Grace.” Their book discusses how to write clearly, elegantly, and with grace. The book sets forth principles on writing, such as word use, constructing sentences with clarity in mind, and how to clearly structure ideas.

In Ch. 7, Williams and Bizup discuss



motivation and that most readers are not yet deeply engaged or knowledgeable in a topic. They set forth the idea that a writer can't expect readers to be interested in what the writer is interested in or that readers are content with a writer just passing along information.

They make the argument that a writer should try to frame the introduction of a piece and a topic as a problem to be solved.

This broadly relates to my project in a few ways. In their book, they detail two types of problems, practical and conceptual. Practical problems are issues like the opioid epidemic in the United States or drunk driving. Solutions to practical problems are policy changes, opening a rehab center, or passing new laws. Conceptual problems focus on how we think about and perceive the world. Their solutions focus on how we should change our perspective because of new information.

My creative project seeks to solve two conceptual problems. The first is the lack of a comprehensive, impartial resource about the Olympic torch relay that acknowledges the good it strives for, while recognizing the controversies surrounding it. The project solves this by providing a detailed history of its founding along with diving into the data surrounding the relay.

The second conceptual problem is what special projects pages for in-depth journalism should, or could, look like and how journalists should approach user experience.

Williams and Bizup broach a common issue with conceptual problems. It's the problem of the reader asking "So, what?" which stretches from writing to data visualization and other aspects of journalism.

Sometimes journalists do data visualizations for the sake of doing them, fulfilling an

arbitrary multimedia requirement or because the story calls for one. There's nothing inherently wrong with these three options, in my opinion. Doing data visualizations because we can is necessary because the internet is the most visual medium ever created. It's a new frontier for how people consume information and journalists need to figure out what works in order to keep the profession alive. Also, the world has never had so much data and ways to process it.

In addition to being the most visual medium ever created, the internet is a new frontier for storytelling. We do data visualizations because it can push the boundaries of what's possible in how you tell a story.

Even putting data visualizations onto an article page as a multimedia element to meet a requirement dictated by a publisher has value. According to Moz and Hubspot, digital marketing and analytics consulting companies, using multimedia content, such as pictures, infographics, videos, and visualizations, decreases bounce rate and increase average time on page.

Bounce rate is a measure in analytics that indicates what percent of users left your website after viewing that article. Average time on page is a measure in analytics that indicates how much time the average user spends on a page.

The longer someone stays on site or page, the greater chance a user has of interacting with an ad, making a purchase, or subscribing to the news organization.

The concept of "So, what?" is cynical, but necessary. "So, what?" forces storytellers to think about why readers should care and how storytellers should spend their time and resources. However, in the area of data visualization, the answer is "Why not?"



The internet enables storytellers to create amazing presentations for stories. This was part of my guiding philosophy from the early to the late stages of the project.

In part, this project's allure comes from the fact that no one's presented the torch relay in this way before. Some news organizations cover the relay's history when the Olympics roll around every two years, but the extent of that coverage is a story, some pictures, and maybe a video. No one's taken a dive into this topic with data in mind.

In late February 2017, I discovered insight that would help inform the rest of my guiding inspiration and principles for this project. I traveled with Ryan Sparrow, a professor of journalism, to Washington, D.C., to assist in taking judges comments for the Society for News Design's annual digital competition, where the world's top design editors came together to decide what were the most innovative pieces of journalism in 2016. A number of pieces stood out to me, along with their comments.

The common theme among the judges comments were simplicity, weaving multimedia content together into a seamless experience across platforms and devices, and cleanliness.

#### **The Wall Street Journal's "Blue feed, red feed"**

"The Wall Street Journal blew our mind in how brilliantly simple this piece was. It's an important story told in a perfect way. It's smart and it looks good. People talk about political bubbles conceptually, but they actually went out there and made it into something that shows it exists. The piece provides utility and continues to do its job after the election. The design isn't mindblowing, but it doesn't need to be. It is what it is. But, the powerful simplicity of the idea is mindblowing.

No tricks, no gimmicks, no videos, no maps. It's something that's in front of us that's juxtaposed. Every time we look at it, we think, 'That's it. That's the future.'" No tricks, no gimmicks, no videos, no maps. It's something that's in front of us that's juxtaposed.

This is pushing the envelope.

The judges here emphasize the utility of this project, how it remains evergreen, or timely, well after the election. It's a project that has a clear design and user experience. This was something I took note of when I began to lay out my project. I wanted it to be something that would have an evergreen utility to it.

#### **National Geographic's "A bear's-eye view"**

"What sets this piece apart from being just a graphics entry is its entry point to the story. It's really consistent in style and links together many media types in a way that doesn't feel disjointed. There's a process and it's compelling. I wanted to move through it. There's clear art direction. It breaks out of the mold of what most people are doing. The mobile experience, too, was very good."

Here, the judges emphasize the consistent design style and the momentum the reporters and designers create throughout the piece. They also hammer home the point about mobile design and responsiveness being a key factor in deciding whether or not it was innovative.

#### **The New York Times' "Simone Biles"**

"Fabulous. Everything came together so well and it's a great interaction with video. The experience of video and interactive can sometimes be really cumbersome but this really nails it. The flow of the story, the use of the graphics and video are spot-on; but also, the piece had the



detail and narrative to pull the reader in. It's not only a technical graphic, it's telling you a complete story. The editing of the video was very consumable.

The typography doesn't get in the way and allows the reader to focus on the story. Plus, it's just gorgeous on the phone."

Judges emphasized flow and a clean, clear UI, especially on mobile in why this piece did so well for them.

### **The Washington Post's "Concrete Divisions"**

"Tour de force. It's thoughtful, immersive and deliberate with the navigation and all of the little touches. You're building a wall as you go along. The Post pushes the medium forward in terms of trying to crack the nut on digital video storytelling with this piece.

The maps are gorgeous and the control of just three colors is amazing. Not only does it stretch the medium of digital storytelling, but it also stretches the technical area. They seam together the video clips perfectly and provide a great user experience. You fall in and start going."

This last example of excellently designed

special projects hits all the right notes in terms of immersion and attention to the detail, according to the judges.

I don't know if what I created pushes the envelope quite like these pieces do, but it does create a sharp, clean, and clear visual and user experience across all platforms and devices. I tried to shape my project with these comments and pieces in mind because they were the most innovative, ground-breaking works of 2016.

As I began sketching out the project, I followed and kept in mind Google's Material Design. It served as the design foundation for this project because of its universal use by Google on the platforms we use everyday. Choosing to use the principles embodied in Material Design allowed me to create an experience that should be seamless for most people. When they open my website, they won't see an unfamiliar user interface. The way they interact with the project's content will remind them of the everyday utilities they use from Google, such as Google Drive, Gmail, and other services. Material Design also has the added bonus of being open source, which is part of the reason it's one of the most widely used visual languages on the internet.

## Building the dataset

The project's foundation comes from a unique, comprehensive dataset, which is available for download on the project website. The dataset provides information about the relay that includes miles crossed, transportation methods, torchbearer counts, torchbearer gender distribution and more. I created the project's backbone using documents made publicly available by the Olympic Studies Centre. Each document is about one-hundred pages long, includes

number tables, maps, timelines, and anecdotes regarding each edition of the relay. They are available on [olympic.org](http://olympic.org). The dataset was constructed during the summer of 2016 when I went page-by-page through each set of documents, first with the summer Olympics and then then winter Olympics. I recorded the year, the host city, the host country and then the total kilometers crossed in each relay, which were converted into miles. Some



years didn't include the total distance traveled, but the documents did provide a map of the route. These years are 1956 Cortina d'Ampezzo, 1960 Squaw Valley, 1964 Innsbruck, and 1968 Grenoble. I've highlighted and annotated these entries in the official release of the dataset. Their estimated distances were calculated using Google Maps and the supplemental information in the documents.

Next, I recorded the explicitly stated modes of transportation used in a relay. If it wasn't mentioned, I marked it as a no. I used Google Sheet's "CountIF" function to total up the number of yes's for each mode of transportation.

I also recorded the number of countries crossed for each relay, the number of total torchbearers for each relay, when each relay began and ended, how long each relay lasted, who the first and last torchbearers were and their sex in each relay, and the names of countries visited in each relay. And finally, I recorded a breakdown for every country visited by a relay, which includes if their borders were crossed, how many

kilometers were crossed in, and the number of torchbearers in each country for each relay.

Once I did an initial pass through of the data, I went back and did the whole thing again, making sure I marked down every data entry correctly. The whole process took me about 40 hours because I had to figure out how to structure the data and what data I could and couldn't include. Originally, I hoped to be able to break down what modes of transportation were used in which countries, but the data wasn't available. I found that as the data got more granular at national levels, it became more porous and unreliable.

Also, I had to account for how country crossings would tally up over time because of changing borders. Countries that split out of larger countries, like Yugoslavia, received the total number of crossings from their progenitor country as a baseline.

With the data cleaned, I used the pivot table functions in Google Sheets to break out certain aspects of the data for analysis, such as relay length.

# Creating the content

The website I created contains five main pieces of content:

- Landing page and opening graphic
- A news story about the relay's history
- A story about the relay told through numbers
- A graphic about the distribution of genders of the first and last torchbearers for all relays
- A running list of helpful resources for covering the Olympic torch relay

I'll discuss creating the landing page and the other web pages for this project further down because that involves coding. However, the opening motion graphic took quite a bit of work. It originally started as a plain choropleth map that showed the number of times a relay had crossed a country by the year 2016. However, when examining the dataset and story ideas, I realized that there was a running time element through them.



I began to wonder how I might use that time element to create movement through the project site, motion being something the SND Digital judges spoke highly of in the winning entries. Also, motion is a key component of material design.

I wanted to show the changes to the choropleth map over time so a reader could get a sense of how expansive the relay became in its visits around the world over time. At first, I thought this might be some sort of interactive graphic written in HTML, CSS, and JS. I decided against this out of fear that it would slow the website down when a user loaded it, especially on mobile. The second option I came up with, and what I eventually went ahead and did, was a motion graphic saved as a webm file, which is essentially a GIF.

The graphic needed to show 37 relays in 20 seconds, maintain high resolution and minimize file size. The reason for the short time frame was because the graphic needed to create momentum for the reader to want to know more and to also want to view the graphic multiple times because it's on a looped autoplay.

Building the actual motion graphic was time consuming, which Stacie Kammerling, a visual communications major, helped with. Before we could start building the motion graphic, I had to build a subset of the dataset I created. It needed to show cumulative totals for how many times each country had been visited by the relay. This subset would serve as a sort of checklist as we built every single year into the motion graphic.

Stacie and I first started the motion graphic in Adobe Illustrator, where we illustrated a choropleth map for every single relay.

The color scale we used for the countries goes from one to eight, except for Greece. Greece has its own color scale to show the number of times a relay crossed its borders because it has the most out of all of them, 34 crossings, and is an outlier in the dataset.

Also, we accounted for border changes on every single map. The maps we created would later serve as layers in Adobe After Effects, the program we used to build the 20-second motion graphic.

After we finished the maps, we went line by line in the data subset to make sure all the countries had the right totals across time. We also made sure country and water body sizes were relatively consistent across all 37 maps. We wanted to avoid creating an effect where the map shifted all over the user's screen.

With everything fact checked, we plopped the 37 maps into After Effects as layers and created the motion graphic by starting with the 1936 map and going to 2016. This was done by adjusting the opacity for each map at the appropriate time. This whole process took about 50 hours.

When we finished the motion graphic, we exported it as a standard video file, .mp4, and used an online conversion tool to make it a webm file. The mp4 file was 15 megabytes, which was too large for a user to load on mobile. When we converted it to a webm, the file size shrunk to just under 1 megabyte, well within the acceptability range for loading on mobile.

When I wrote the next three pieces of content, I used interviews to produce them along with primary documents I found on internet archives. Jennifer Weaver from Ball State's IRB said these were not the type of



interviews that are subject to IRB approval because they are journalistic. My opinion on the relay is not inserted anywhere into these pieces. The pieces merely present the facts about the relay because a lot of this information is not easily accessible to the public. I did not synthesize what each person said to imply who is right or who is wrong, rather I present the discourse about the relay's history so the public can understand it and make up their own mind.

In writing the piece about the relay's history, called "A relay's legacy," I spoke to two historians about the relay, one is an Olympic historian with the Journal of Olympic History and the other works at the United States Holocaust Memorial Museum. We talked about the relay's founding and the controversy surrounding it and how historians view it today. I used a number of primary documents and news reports to supplement what they said. The art that accompanies this piece comes from Wikipedia and is licensed under Creative Commons, meaning it is available for public reuse.

I based the second story, called "Going the distance", on the statistics I pulled from the dataset I created. I take a look at the relay in terms of the total number of miles crossed,

number of total days passed, methods of transportation, the longest and shortest relays, and more. Stacie Kammerling and I created graphic illustrations to accompany the numbers and to help break them up and make them digestible for users.

The second to last piece of content I made, called "Gender and the relay," involves illustrating some torch bearers, a couple of quotes from one of the experts, and the names of the first and last torchbearers. This piece focuses on the first and last torchbearers because records of every single torchbearer are difficult to find. However, the most important roles in the relay are the first and last because the first torchbearer takes it down from Olympia, Greece, and the last torchbearer lights the cauldron to signify the start of the Games. The distribution of gender for these two ceremonial roles is visualized through the illustration and the motion of scrolling through the list of names.

The last piece of content that populates this project site is a running list of sources, records, documents, news articles, and other information that I used in researching the torch relay or just saw as potentially useful for someone else if they were covering the relay.

## Designing the website

After I created every single piece of content, I had to go back to my guiding principles and start to sketch out what the website would look like. I used a standard legal notepad to do this work.

I knew starting off that there would be several distinct pages for the stories I created because they couldn't all exist on a single

page without messing up the flow of the story telling in each piece. Therefore, I knew there needed to be some sort of home page that linked all of the separate articles together.

I laid out my grid for the home page, determining where I wanted my opening motion graphic, headlines, cards for article pages to go. I created a version of this page



for desktop and mobile.

I wanted this project to break the mold in terms of its content and how people understand the torch relay, but I didn't want to reinvent the wheel in terms of the design language. This is my main reason for using Google's Material Design. If a design language is good enough for tech behemoths like Google, then it's good enough for me.

For desktop, I aimed for the landing page to have a motion graphic that would pull people in, where they would scroll down to see a captivating headline and introductory text followed by stacks of cards leading to interesting content. On mobile, I envisioned a seamless scrolling experience, where the varying sizes of desktop elements would shrink down to become the same size and weight, similar to how a news feed displays content for users on mobile. The motion graphic would still be the opening piece. I also wanted the article pages to follow a similar model. For the relay story on desktop, for example, images were designed to dot the page and help break up the text, but on mobile they flow together into a vertical scroll experience similar to a newsfeed.

Designing all of the pages in this manner allowed me to create a sense of uniformity and consistency. I chose to use a white background for every page because it's crisp and doesn't mess with readability of text. Reverse type, white text on a dark background, can be difficult for people with

varying vision strengths to read.

During this design stage, I determined my font choices for headlines, subheadlines, and body text. I decided to use Playfair for headlines and Roboto for body text. Both fonts are open source and available for use on websites via a CDN from Google Fonts. I chose Playfair because it is a crisp serif that looks good when enlarged as a headline. I chose Roboto because it is a common webfont Google uses in its own application.

I also chose a flame yellow color for my site branding on links and buttons. This color was based off an illustration of a cauldron I made for the "Going the distance" article. This cauldron would also serve as the favicon for the site when opened on desktop.

The last step I took before building the site was to determine the file structure for the project. I needed to figure out where I would save it on my computer and what folders I would use. I decided to keep all of my HTML files in the master file directory and that each of the CSS, JavaScript, and other media files would have their own distinct file directory inside the master directory. I went ahead and created these folds on my computer so that I could just plop the files into their spots as I built the project.

With wire frames, file structure, and other notes in hand, I was ready to build the project website.



# Building the website

The site's starting point, in terms of code, came from the popular HTML framework Bootstrap because its foundation is built on responsiveness and speed across platforms. It innately covers some of the aspects of Google's Material Design by including things like card and thumbnail templates.

However, I discovered that to have my cards behave properly across all devices and platforms, the Bootstrap grid system, which relies on CSS and HTML, was not sufficient. It did not resize or restack dynamically depending on a user's screen size. I laid out the bulk of the site using Bootstrap's default grid CSS classes, but relied on the JavaScript library Masonry to create the dynamic grid for the cards that lead someone to one of my articles. I wanted the cards to have specific sizes on desktop, but to be all the same size on mobile.

With my grid layout figured out, I focused on getting the opening motion graphic to work. I discovered that while most desktop browsers support webm playback, with the exception of Safari and Internet Explorer, mobile browsers do not universally support webm playback, especially in apps like Facebook, where most users consume news content.

It is important that we design news products with mobile first in mind because numerous analytics companies, such as web analytics company StatCounter, have found that a majority of internet users are on mobile devices. StatCounter found that in October 2016, mobile web traffic surpassed desktop

traffic. Also the Pew Research Center found in 2016 that a majority of online news consumers come from small devices and social media.

To solve this problem of webm playback on mobile, I uploaded the webm to webm host site <https://gfycat.com/> because it allows for webms to be embedded as iframes, which are HTML tags that act as windows to other sites.

However, if I inserted both the video tag containing the desktop webm and the iframe containing the mobile iframe webm, the website would force users to load both webms, which would increase load time. Usually, you can use CSS styling to determine what content is seen by users based on their screen size. However, the problem with that method is that it loads both versions of your media content, increasing load time for users.

I got around this dilemma by writing a small chunk of jQuery in my JavaScript file. This jQuery runs when you open the website. It checks to see what screen size you're on and then decides which version of the webm to load. I wrote the HTML to contain both an empty video and iframe tag. Depending on your screen size, the jQuery manipulates the desired HTML tag and inserts the webm source. This avoids the user loading both duplicates of the motion graphic.

With my landing page's card layout and motion graphic finished, I was able to move on to the article pages.

For "A relay's legacy," I first inserted



the entire story in paragraph tags into the HTML. I followed this up by going through and adding link tags to articles, primary documents, or other supplemental information. After I laid out the story, I wrote some HTML and CSS to style the headline, subhead, and navigation buttons so they matched my wire frame specs. I inserted my byline after the headline and used an open source icon to link my Twitter.

I then copied and pasted the code for my headlines and bylines to new HTML documents so that I wouldn't have to rewrite the same code for the rest of the website.

Back on the relay's legacy page, I inserted public domain images in image tags throughout the page. I wrote some CSS media queries to make sure they resized properly for mobile. On desktop, the images take up a small portion of the screen. On mobile, the images are set to 100 percent width, an industry standard size.

The last touch for the relay page was to add cards that floated to the right side of the story on desktop and floated to the bottom of text on mobile. These cards contain supplemental images, maps, videos, and other content that look to create a comprehensive multimedia experience across platforms.

Coding for "Gender and the relay" and "Going the distance" went a little different. On each page I adjusted the headline code and inserted some introductory text. This was the only code I wrote by hand. The rest of the page's content was generated using The New York Times' open source Adobe Illustrator plugin ai2html, which allows users to create vector graphic images that scale text properly. The problem with infographics on the web is that they insert the text inside the image. This plugin

exports the image and then anchors HTML text to the image based on how it was designed in Illustrator.

I laid out each of the page's content in two different sizes on two different artboards in Illustrator, one for desktop and one for mobile. Each artboard, when exported, would be set to display depending on what platform a user is on using CSS media queries. The user would load both versions, but because the files are so small, the impact on loading speed is negligible. Once I laid everything out for the desired screen sizes, I exported the file's contents to html using ai2html. I plugged in the exported HTML and wrote the appropriate CSS rules and I was done.

The about page and repository page were made by inserting the text I wrote for each into appropriate paragraph tags.

The last page on the website that I coded was the contact page. I wanted to have a place for users to submit comments or corrections so I created a secure contact form. I used an open source template to fulfill this goal.

With all of the project files finished, I had to figure out how I would publish the project. I decided the easiest thing to do was register a subdomain on my website, <https://alanhovorka.com>, and then upload the files there. I use Lithium for my hosting needs because their customer support is fast and reliable and they gave me a deal when I transferred my personal website to them from Wordpress.com. Lithium also offers an easy-to-use web interface for file upload.

After I uploaded the project to <https://relays.alanhovorka.com>. I shared it with friends and colleagues to test it and make sure the site worked.



# Open sourcing the project

I open sourced this project because sunlight is the best disinfectant, a concept related to my sense of journalistic ethics. I believe that because journalists demand transparency from institutions, they themselves have to model that behavior. These beliefs are a motivating factor in how I create products and content as a journalist. This is why I open sourced this project. It allows anyone with a keen interest in the project to see how I built

it, right down to the website's skeleton. How can I present better resources on the Olympic torch relay for the public and expect people to use them if I don't provide transparency? In my mind, your work should be capable of standing up to all possible scrutiny.

I even made the data available via Github for download by the public so they could do their own stories.

# Known issues with the site

There are two known, minor bugs with the website.

Masonry, the JavaScript library I used to create a grid for my content cards on the homepage, on occasion will not load properly, causing an error in how users see the stacking cards. This is corrected by refreshing the page. The source of this problem is well-documented on Masonry's Github page. The cause of this bug stems

from the use of CDN for the fonts on the website and Masonry provides a workaround that takes a bit of work to implement.

While I solved the webm playback for most browsers, the occasional user might experience difficulty in loading the webm on desktop depending on what browser they use. This problem mainly stems from the fact that webm is still not universally supported by the internet's browsers.

# Setbacks and changes

Originally, this project was going to include a component that explored different special projects by news organizations. It was going to analyze how they produced their special projects and include analytics on how users interacted with them. However, I realized this would be too much of an undertaking, given the scope of the project. As it stood, I needed to collect data, conduct primary research, illustrate graphics, build the website and test the website. I would not have finished this project if I also performed and analyzed case studies for this paper.

I found a substitute for this challenge when I traveled to Washington, D.C., this semester to assist the Society for News Design with their annual digital contest, where top design and visual editors from across the country came together to judge the digital work of professional news organizations. These judges evaluated submissions to

determine which were the most innovative and groundbreaking of 2016.

This project turned out to be a more of a massive undertaking than I originally thought. It took me two months to finish doing the research on the relay and tech needed for this project, which left me a month to build everything.

Also, I had an idea for an interactive map that would trace the routes of every single relay route ever, but I ran into too many setbacks and difficulties finding reliable information on every single route, not to mention figuring out how to build the interactive map without bogging down the website with a ton of JavaScript. I scrapped this idea and worked with the ideas for pieces about the relay's origins, what the numbers tell us, and how the gender distribution of relay runners breakdown.



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